Panasonic
ideas for life



LUMIX

LUMIX L1 Digital SLR Camera

Introducing the first Leica lens designed especially for a digital SLR camera

L1

Panasonic
http://panasonic.co.jp/pavc/global/lumix/



From "OUR PLACE" - The Worlds Heritage

Program AE (shutter speed: 1/160 sec, aperture: F6.3)

Digital Renaissance



Right in Your Hands: The Digital SLR that Feels the Way a Camera Should —— An operating feel that is both perfectly intuitive and deeply satisfying. A level of responsiveness to capture even the most fleeting moment. An expressive ability that inspires creativity. The LUMIX L1, from Panasonic. In developing the L1, we began by delving into the essence of the single lens reflex camera and image creation. We combined the first interchangeable lens designed by Leica specifically for the digital SLR camera with the advanced technologies that make Panasonic a world leader in digital imaging. We ended with a ground-breaking digital SLR that stands apart from all the others. The LUMIX L1. A camera that aims to create a new photographic culture for the digital age.

LUMIX L1



Program AE (shutter speed: 1/50 sec, aperture: F3.4)

Extending the Leica Evolution

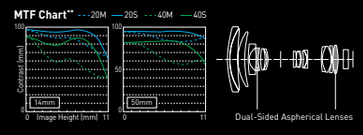
The LEICA D VARIO-ELMARIT 14-50mm/F2.8-3.5 ASPH. Lens

The Leica D Lens - The First Leica Lens with Optical Image Stabilizer (MEGE O.I.S.) Designed Especially for a Digital SLR

Leica Camera AG, renowned as the maker of lenses that have captured some of the world's most memorable photographs, has now created its first interchangeable lens exclusively for the digital SLR. The new Leica D lens series ("D" for digital) derives from an entirely new design concept. Developed jointly by Leica Camera AG and Panasonic specifically for digital photography, this advanced lens fuses leading-edge optical and digital technologies at an uncompromisingly high level. As it joins the digital SLR arena, Panasonic has also chosen to adopt the Four Thirds™* system in order to maximize the advantages of both image sensor and lens. The new D lens inherits the smooth tonal expression and rich shading that make Leica lenses the choice of both professional and amateur photographers the world over. Anxiously awaited by true photography aficionados, the new lens helps the LUMIX L1 reach a new stage in the evolution of digital SLR cameras.

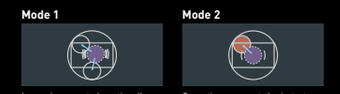
The LEICA D VARIO-ELMARIT Lens: Dual-Sided Aspherical Lenses and a Maximum Aperture of F2.8

This wide-aperture zoom lens provides F2.8-3.5 brightness from 28mm wide-angle to 100mm telephoto (35mm film camera equivalent). With 16 lens elements in 12 groups, including two glass-molded dual-sided large diameter aspherical lenses, the LEICA D VARIO-ELMARIT lens delivers a superb optical performance. It minimizes distortion in wide-angle shots and suppresses the loss of peripheral resolution. An excellent multi-coating process helps reduce ghosts and flaring. The lens provides the sharpness, high resolution and superb color reproduction that convey even the ambience around a subject. The lens barrel is fitted with an aperture ring for a new level of easy, intuitive operation. With the new LEICA D VARIO-ELMARIT lens, the L1 has an entirely different feel from other digital SLR cameras, and lets you go as far as your creativity will take you.



Minimal Hand-Shake with MEGA O.I.S.

The new D lens features Panasonic's MEGA O.I.S., an advanced optical image stabilizing system that makes it possible to take clear, sharp macro and low-light shots. With MEGA O.I.S., the Venus Engine operates 4,000 times per second to detect the amount and direction of hand-shake, and then shifts a corrective lens accordingly. Light entering the camera is kept on a straight path as it passes through the lens to the image sensor. Because the shake is corrected entirely within the lens, the image is preserved with original quality intact. Built into the lens, the Venus Engine provides quick, precise image processing for superb image stabilizing control. With these advanced features, the L1 can shoot beautiful shots, without a tripod, in situations where you cannot use a flash or in evening light. You get easier shooting and a wider range of expressive possibilities to explore.





*Four Thirds™ is a trade mark. **The Modulation Transfer Function (MTF) chart shows how faithfully the contrast of the subject is reproduced in the image, using spatial frequency characteristics.



Déjà Vu for the Palm

A Familiar Feel —— That Familiar Touch

Intuitive in Form and Function

The L1 is much more than a collection of sophisticated functions. It is designed to be a tool that photographers will find both comfortable in their hands and a joy to use – a camera that looks, feels and works the way a finely crafted camera should. It is designed to deliver total satisfaction – in operation, performance and results. The camera body is formed to fit the hands naturally. The controls are laid out to ensure intuitive operation from the moment you first pick up the camera. Operation is not forced upon the photographer. Rather, the camera becomes an extension of your own expression, a seamless interface between the images you see in your mind's eye and the advanced digital functions that bring those images to life. Photographers will immediately recognize the feel of the L1, like a camera you've used many times before. You'll find that it comfortably, naturally extends what a digital camera can do. You'll find that with the L1, human sensitivity and digital technology are beautifully combined.



Lightweight, durable magnesium alloy body

An Aperture Ring that Responds Intuitively to Your Intent

Photographers who appreciate the natural feeling of creating photo images place top priority on the camera's operation. The L1 takes operation a big step beyond conventional digital SLR lenses by adding an aperture ring to the lens barrel, alongside the zoom ring and wide focus ring. You can set the aperture from 2.8 to 22 in 1/3 EV steps. This combines with the shutter speed dial to give you quick, precise, intuitive control over the exposure setting. You'll feel a distinct click as you turn the aperture ring. This not only enhances your sense of control, it gives you the kind of shooting joy you feel when photographer and camera become one.

A Shutter Speed Dial with a Familiar Feel

The shutter speed dial and shutter button are positioned along the same axis on the camera top. They feel instantly familiar to your fingers and provide comfortable, intuitive operation. In manual mode, you can use the shutter speed dial and cursor button to set the speed from 1/4,000 to 60 seconds, or you can select bulb shooting. The 1/160-sec X-sync speed provides a wide response to flash shots. Because the dial is right there for you to see, operation is quick and easy.

Full-Time Live View on the Large, High-Resolution LCD

The full-time Live View system is well suited to the coming generation of digital still cameras that pursue the true "joy of shooting." The L1's full-time Live View makes it easy to focus and frame precisely on the 2.5-inch LCD monitor, which has superb 207,000-pixel image quality and a virtually 100% field of view. In this system, a mirror flips up, directing the same light to both the Live MOS sensor and the LCD monitor. Full-time Live View operates for auto focusing. When you're focusing manually, full-time Live View lets you magnify a part of the image by 10x for greater focusing precision. The L1's large, high-image-quality LCD gives you a precise preview of the depth of field without darkening*, as the display is bright and easy to see. Checking the results of the 2-axis white balance adjustment on the full-time Live View screen also assures more precise adjustment before shooting. These versatile functions bring forth completely new shooting styles for SLR cameras, and expand the possibilities for photo expression.

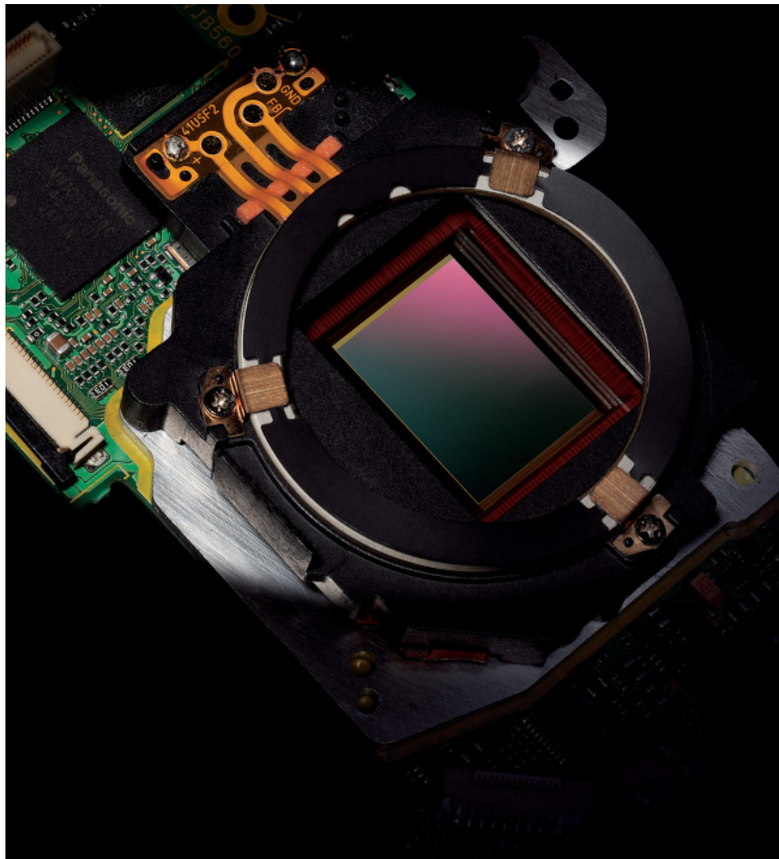
Checking the depth of field in Live View

* The LCD may become dark at times depending on the subject and the camera setting.









The Birth of Beauty

Beautiful High-Resolution Images: 7.5-Megapixel 4/3-type Live MOS Sensor for the Best of Both CMOS and CCD Sensors

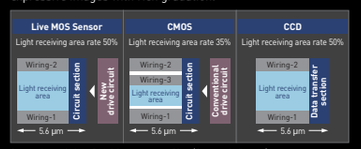
The Rich Tonal Quality of the CCD, the Low Power Consumption of CMOS



The L1 uses a high-image-quality 7.5-megapixel 4/3-type Live MOS sensor. The ideal sensor for digital SLR cameras, the Live MOS sensor delivers the same high image quality as a CCD sensor with the low power consumption of a CMOS sensor. This advanced sensor draws on MOS signal amplification technology but uses a simpler structure. It's molded as a single unit onto a flexible circuit board, reducing both the number of signal exchanges and the contact resistance from wiring. A process technology with 5-V activation reduces heat and noise while improving the image quality of the Live View function.

A Wide Dynamic Range for Richer Image Gradation

The Live MOS sensor featured in the L1 uses a new readout circuit that reduces the three control wirings required with a CMOS sensor to the two wirings required with a CCD sensor. This provides a greater photoreceptive area per pixel than a conventional CMOS sensor can provide. The result is the type of wide dynamic range that makes it possible to capture detailed, expressive images with rich gradation.



Comparison of Light Receiving Areas per Pixel (Panasonic figures)

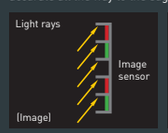
Low-Noise Processing and Pinned Photodiode Array Reduce Image Graininess

The Live MOS sensor not only slashes noise, it embeds the photodiodes deeply into the silicon layer, where they are resistant to noise generated on the photodiode surface. This suppresses the rough image texture that is sometimes noticeable (like viewing an image through an unwashed window) when shooting in dim lighting, giving you clear, smooth shots even in difficult conditions.

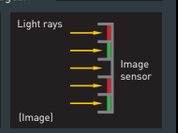
The Four Thirds Standard: Designed to Maximize Image Quality in Digital Cameras

For accurate imaging, the light must strike the image sensor at a perpendicular angle. When a lens designed for a film camera is used, light from the edge of the image area enters at an angle, resulting in inaccurate color reproduction or dark areas. The L1 uses a lens mount with about twice the diameter of the image circle. Light strikes the sensor at an almost perpendicular angle, so images are clear and accurate all the way to the edges.



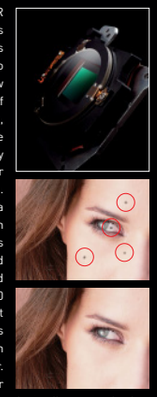


Film camera lens design

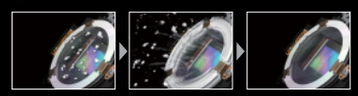


FourThirds System lens design

Protecting the Digital SLR Image Sensor: Dust Reduction System



One of the risks with a digital SLR camera is that, during a lens change, dust or dirt could make its way into the camera and adhere to the image sensor. This would show up as a flaw in the same location of every photo you shoot. Even worse, the foreign matter could damage the image sensor. The only remedy would be to have the image sensor replaced – a costly undertaking. The L1 solves this problem with a supersonic wave Dust Reduction System. Each time the camera is turned on, a filter positioned between the low pass filter and shutter vibrates around 30,000 times a second to shake away dust or dirt. The loosened dust is collected by a dust adhesion section located under the filter. Because the area between sensor and filter is completely airtight, no dust adheres to the low pass filter or image sensor. This advanced supersonic wave filter requires no maintenance. If you use a digital SLR camera with interchangeable lenses, this kind of advanced protection against dust is absolutely essential.





Program AE (shutter speed: 1/100 sec, aperture: F3.5)

Imaging Expression

Venus Engine III: Extraordinary Processing Power to Reproduce Even Nuances in Texture and Atmosphere

Rich, Life-like Colors



The L1 features the Venus Engine III LSI. This new image-processing LSI precisely reproduces the magnificent images that are captured by the Leica D lens and sent to the Live MOS sensor. Its color expression maximizes the beauty of the original image to produce highly natural picture quality. This superb level of performance makes the Venus Engine III an ideal match for the digital SLR camera.

Smooth, Expressive Photos with Less Noise

The L1 noise-reduction system distinguishes luminance noise from the chromatic noise that diminishes image quality, and selectively targets the chromatic noise. Even when shooting at a high ISO setting*, you can capture abundant detail and get smooth, clear shots with minimal noise. *The ISO setting ranges from the standard ISO 100 level to the ultra high-sensitive ISO 1600.

The Quick Response You Need to Catch Every Moment

The L1 is built for spectacular high-speed shooting, with a startup of only 0.8 second and burst shooting at 3 frames per second. The shutter works as fast as you do. The L1 has unlimited consecutive shooting. You can keep shooting until the memory card is full, and choose the best shots later.

Low Power Consumption for More Shots and Longer Shooting Sessions

The Venus Engine III combines superb speed and precision with low power consumption. Together with the Live MOS sensor's low power consumption, this means more shooting time between battery charges. Enjoy extended shooting sessions without worrying about the battery, even while taking advantage of the L1's many digital functions.

Film Mode: Choose the Imaging Mode that Best Suits Your Creative Intent

The L1 introduces a new Film mode function that lets you select from several different image looks according to the subject you're shooting and your creative intent. When shooting in color, you can choose from Standard, Dynamic, Nature, and Smooth. With black and white, you can choose from Standard, Dynamic, and Smooth. You can also adjust the contrast, sharpness, saturation and noise reduction levels, to reproduce exactly the mood and atmosphere you want. With these functions, the L1 is a digital camera that gives you the same kind of flexibility and satisfaction you enjoy when choosing film for a film camera.



Built-In Flash for Lighting Versatility



Normal Lighting



Bounce Lighting

Choose from five flash settings, or use Bounce Lighting or 1st Curtain/2nd Curtain Sync. Exposure can be adjusted ±2 EV in 1/3 EV steps. A hot shoe is provided. L1 compatible flashes (sold separately) allow TTL auto adjustment. The new FP Lighting function also synchronizes the flash at the lightning shutter speed of 1/4000 sec. This greatly expands shooting possibilities by allowing more versatile and precise lighting control.

A Variety of Light Metering Methods and Focusing Areas to Match Your Shooting Needs

Three light metering methods let you read delicate lighting differences and accurately match shooting conditions. Use Intelligent Multiple light metering to divide the image frame into 49 blocks for multiple-zone light measurement. Or choose either Center Weighted or Spot light metering. As for the focusing area, the auto focus system employs a TTL phase difference detection system with three measuring points across a wide image area. You can also specify a particular point as the focal point. This can be useful in certain shooting situations or shooting techniques.



Color: Standard



Color: Dynamic



Color: Nature



Color: Smooth



Black and White: Standard



Black and White: Dynamic



Black and White: Smooth

Proven Expressive Power



A wide lineup of high-performance Four Thirds lenses.

Optional Accessories

PL Filter
DMW-LPL72

MC Protector
DMW-LMCH72

External Flash
DMW-FL500 / DMW-FL360

Shutter Remote Control
DMW-RSL1

Leather Bag
DMW-BAL1

Shoulder Strap
DMW-SSTL1

Battery Pack
CGR-S603

HD Photoplayer
DMW-SDP1

SD USB Reader/Writer
BN-SDCAPU/1B
(for Windows®98/ Me/2000/XP)
*Not compatible with SDHC Memory Card

SD PC Card Adaptor
BN-SDABPU/1B
(for Windows®98/ Me/2000/XP)
*Not compatible with SDHC Memory Card

SD/SDHC Memory Card

4GB*: RP-SDK04G
2GB*: RP-SDK02G
RP-SDQ02G
1GB*: RP-SDK01G
RP-SDQ01G
512MB*: RP-SDK512
256MB*: RP-SDH256
128MB*: RP-SD128B
64MB*: RP-SD064B

*1GB = 1 billion bytes.
1MB = 1 million bytes. Usable capacity will be less.

Software

SILKYPIX Developer Studio 2.0 SE

This software lets the user process RAW data images* in a variety of ways to match the original shooting intent. Its advanced developing capabilities suppress problems like unnatural edges at color borders and color noise, while its high resolution and superb color separating performance lend beautiful expression to details.

*Only RAW data images taken by the L1

<Image Adjustment Menu>
• Exposure bias • Tone adjustment • Color adjustment
• Sharpness adjustment • White balance • Others

Compatible OS :
Microsoft Windows 98SE/Me/2000/XP Mac OS Xv 10.3-

LUMIX Simple Viewer

This software is used to upload JPEG images taken by the L1 to a PC, and easily manage, edit or correct them. It also makes it easy to upload images to a Web site, create slide shows, and print images.

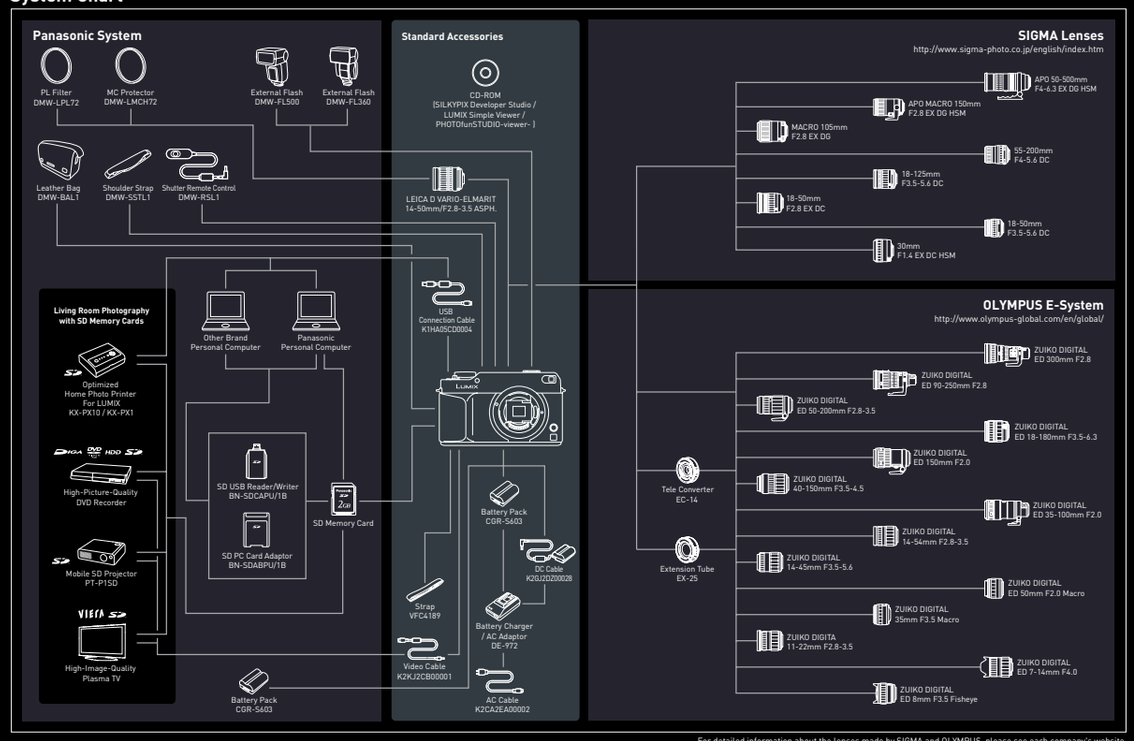
Compatible OS:
Microsoft Windows 98SE/Me/2000/XP

PHOTOfunSTUDIO-viewer-

This image viewing software lets you upload image data to a PC, then organize the images into categories, process them, and print them. It can also be used to convert RAW files to JPEG format.

Compatible OS:
Microsoft Windows 98SE/Me/2000/XP

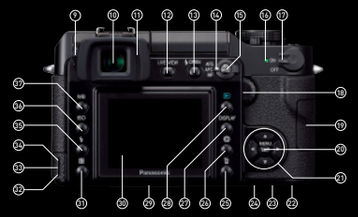
System Chart

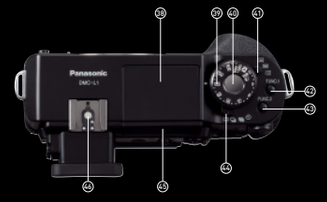


For detailed information about the lenses made by SIGMA and OLYMPUS, please see each company's website.

Main Parts And Controls



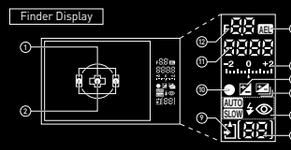




① Strap eyelet
② IR sensor
③ Lens fitting mark
④ AF assist lamp / Self-timer indicator
⑤ Lens lock pin
⑥ Lens release button
⑦ Mirror
⑧ Mount
⑨ Diopter adjustment dial
⑩ Viewfinder
⑪ Eye cup
⑫ [LIVE VIEW] button
⑬ Flash open button
⑭ Focus mode lever
⑮ [AFL/AEL] button
⑯ Status indicator
⑰ Camera ON/OFF switch
⑱ Command dial
⑲ Card door
⑳ [MENU/SET] button
㉑ ◀/▼/▶/▲/Cursor buttons
㉒ DC cable cover
㉓ Battery door
㉔ Open/Close lever
㉕ Delete button
㉖ Aperture preview button
㉗ [DISPLAY] button
㉘ Playback button
㉙ Tripod receptacle
㉚ 2.5" LCD monitor
㉛ Flash output adjustment button
㉜ [USB] socket
㉝ [V OUT/REMOTE] socket
㉞ Terminal door
㉟ Flash button
㊱ [ISO] button
㊲ [WB] button
㊳ Flash
㊴ Shutter speed dial
㊵ Shutter button
㊶ Metering mode lever
㊷ [FUNC.1] button
㊸ [FUNC.2] button
㊹ Drive mode lever
Single:
Burst:
Auto bracket:
Self-timer:
㊺ Focus distance reference line
㊻ Hot shoe

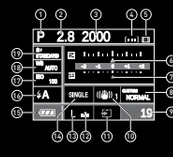
Display

Finder Display



① AF frame
② AF-LED display
③ AE lock
④ Exposure compensation value / Manual exposure assistance / Auto Bracket compensation value
⑤ Exposure compensation
⑥ Auto bracket
⑦ Flash setting
⑧ Number of recordable pictures
⑨ Card access
⑩ Focus
⑪ Shutter speed
⑫ Aperture value

LCD Display



① Recording mode
② Aperture value
③ Shutter speed
④ AF frame setting
⑤ Metering mode
⑥ Exposure compensation
⑦ Flash output adjustment
⑧ Custom set
⑨ Number of recordable pictures
⑩ Optical image stabilizer
⑪ Card access
⑫ Quality
⑬ Picture size
⑭ Single / Burst / Auto bracket / Self-timer
⑮ Battery indication
⑯ Flash setting
⑰ ISO sensitivity
⑱ White balance
⑲ Film mode

SD/SDHC Memory Card Still Image Recording Capacity

Aspect ratio		4:3								
Picture size		L 3136 x 2352 pixels [7.4M]			M 2560 x 1920 pixels [5M EZ]			S 2048 x 1536 pixels [3M EZ]		
Quality										
Card	128MB	16 [5]	33 [6]	66 [7]	24 [6]	49 [7]	99 [7]	38 [6]	77 [7]	150 [7]
	256MB	32 [10]	65 [12]	130 [14]	49 [12]	98 [13]	190 [14]	76 [13]	150 [14]	290 [15]
	512MB	65 [21]	130 [25]	250 [28]	98 [24]	195 [27]	380 [29]	150 [26]	300 [29]	590 [30]
	1GB	130 [43]	260 [51]	510 [57]	195 [48]	390 [55]	770 [59]	300 [53]	600 [58]	1180 [61]
	2GB	260 [88]	530 [105]	1040 [115]	400 [98]	790 [110]	1530 [120]	620 [105]	1220 [115]	2360 [120]
	4GB	530 [170]	1040 [200]	2040 [220]	790 [190]	1560 [220]	3010 [230]	1230 [210]	2410 [230]	4640 [240]

Aspect ratio		3:2								
Picture size		L 3136 x 2080 pixels [6.5M]			M 2560 x 1712 pixels [4.5M EZ]			S 2048 x 1360 pixels [2.5M EZ]		
Quality										
Card	128MB	18 [5]	37 [7]	74 [8]	27 [6]	55 [7]	110 [8]	44 [7]	87 [8]	165 [8]
	256MB	36 [11]	74 [14]	145 [16]	55 [13]	110 [15]	210 [16]	86 [14]	170 [16]	330 [17]
	512MB	72 [24]	145 [28]	290 [32]	110 [27]	210 [31]	430 [33]	170 [29]	340 [32]	650 [34]
	1GB	145 [48]	290 [58]	580 [64]	220 [54]	440 [62]	860 [66]	340 [59]	680 [65]	1310 [68]
	2GB	300 [99]	600 [115]	1180 [130]	450 [110]	880 [125]	1700 [135]	700 [120]	1360 [130]	2560 [135]
	4GB	590 [195]	1180 [230]	2310 [250]	880 [210]	1740 [240]	3350 [260]	1380 [230]	2680 [260]	5020 [270]

Aspect ratio		16:9							
Picture size		L 3136 x 1760 pixels [5.5M]			S 1920 x 1080 pixels [2M EZ]				
Quality									
Card	128MB	22 [7]	46 [8]	91 [9]	58 [8]	115 [10]	220 [10]		
	256MB	45 [14]	91 [17]	180 [19]	115 [18]	220 [19]	430 [20]		
	512MB	91 [28]	180 [34]	350 [38]	230 [35]	450 [39]	860 [40]		
	1GB	180 [58]	360 [69]	710 [76]	460 [72]	910 [78]	1720 [81]		
	2GB	370 [115]	730 [140]	1420 [155]	930 [145]	1800 [155]	3410 [165]		
	4GB	730 [230]	1450 [270]	2800 [300]	1820 [280]	3540 [310]	6700 [320]		

- 1GB = 1 billion bytes. 1MB = 1 million bytes. Usable capacity will be less.
- The numbers in brackets are when [RAW REC.] is set to [ON].
- The number of recordable pictures is an approximation. (These vary depending on the recording conditions and the type of card.)
- The number of recordable pictures depends on the subjects.
- EZ: Extra Optical Zoom (with Live View only)

DMC-L1 Specifications

TYPE	Type	Interchangeable Lens Digital SLR Camera
	Recording media	SD Memory Card, SDHC Memory Card, Multimedia Card
	Image sensor size	17.3 x 13.0 mm
	Mount	Four Thirds mount
IMAGE SENSOR	Type	Live MOS sensor
	Total pixels	7.9 megapixels
	Camera effective pixels	7.5 megapixels
	Aspect ratio	3:4 (vertical : horizontal)
	Color filter	Primary color filter
	Dust reduction system	Supersonic Wave Filter
RECORDING SYSTEM	Recording file format	JPEG (Design rule for Camera File system, based on Exif 2.21 standard), DPOF corresponding, RAW
	Aspect ratio	4:3, 3:2, 16:9 [3:2,16:9 with Live View only]
	File size	4:3 Aspect Ratio: 3136 x 2352 pixels, 2560 x 1920 pixels, 2048 x 1536 pixels 3:2 Aspect Ratio: 3136 x 2080 pixels, 2560 x 1712 pixels, 2048 x 1360 pixels 16:9 Aspect Ratio: 3136 x 1760 pixels, 1920 x 1080 pixels
	Color space	sRGB, Adobe RGB
VIEWFINDER	Type	Eye level porro mirror type optical viewfinder
	Field of view	Approx. 95 %
	Magnification	Approx. 0.93x
	Eye point	Approx. 18 mm [-1[m-1]]
	Diopter adjustment	-3.0 - +1 [m-1]
	Focusing screen	Fixed type
	Mirror	Quick return mirror
	Depth-of-field preview	Enabled with aperture preview button (with Live View only)
	Eyepiece shutter	Detachable
AUTO FOCUS	Type	TTL Phase Difference Detection system
	Focusing mode	AFS / AFC / MF
	Focusing area	3 points
	Focusing area selection	Auto, 1-fixed point/left, 1-fixed point/center, 1-fixed point/right
	AF detective range	EV 0-19 (ISO100)
	AF assist lamp	YES
	AF lock	AFL / AEL button or shutter button halfway pressed in AFS mode
EXPOSURE CONTROL	Light metering system	TTL full aperture light metering by 49-zone multi-pattern sensing system (with optical viewfinder), 256-zone multi-pattern sensing system (with Live View mode)
	Light metering mode	Intelligent multiple / Center weighted / Spot
	Metering range	0 - 20 EV (with optical viewfinder), 0 - 16 EV (with Live View mode with F2.0 lens, ISO 100)
	Exposure mode	Program AE / Aperture priority AE / Shutter priority AE / Manual
	ISO sensitivity	Auto / 100 / 200 / 400 / 800 / 1600
	Exposure compensation	1/3 EV step ±2 EV
	AE lock	AFL / AEL button or shutter button halfway pressed
	AE bracket	3 frames, 5 frames, 1/3 -1 EV step ±2 EV
WHITE BALANCE	White balance	Auto / Daylight / Cloudy / Shade / Halogen / Flash / White set 1,2 / Color temperature setting
	White balance adjustment	Blue/Amber bias, Magenta/Green bias
	Color temperature setting	2500 K to 10000 K in 31 steps

SHUTTER SYSTEM	Type	Focal-plane shutter
	Shutter speed	1/4000 - 60 sec and Bulb (up to approx. 8 minutes)
	Self timer	10 sec / 2 sec
	Remote control	Remote control with bulb function by DMW-RSL1 (optional)
BURST SHOOTING	Burst speed	3 frames/sec or 2 frames/sec
	Number of recordable pictures	6 pictures [when there are RAW file], Unlimited consecutive shooting [when there are no RAW file] (depending on memory card size, battery power, picture size, and compression)
BUILT-IN -FLASH	Type	TTL Built-in-flash, GN10 (ISO100, m), Built-in pop-up, Bounce flash
	Built-in flash	Auto, Auto/Red-eye reduction, Forced on/Red-eye reduction, Slow sync., Slow sync./Red-eye reduction, Forced on/off
	X-Sync speed	Less than 1/160 second
	Flash output adjustment	1/3 EV step ±2 EV
	Flash synchronization	1st. curtain sync. and 2nd curtain sync. (selectable)
	Hot shoe	TTL auto with FL360 / FL500 (optional)
LCD MONITOR	Type	Low temperature polycrystalline TFT LCD
	Monitor size	2.5 inch
	Pixels	207 K pixels
	Field of view	Approx. 100 % (with Live View mode only)
LIVE VIEW	Type	YES (LCD monitor can be used as viewfinder, with Live MOS sensor set to monitor mode.)
	Digital zoom	2x, 4x (with Live View only)
	Extra optical zoom	Max. 1.5x (with Live View only. Not effective with full pixel recording. Magnification ratio depends on the recording pixels.)
FILM MODE	Color	Standard / Dynamic / Nature / Smooth
	Black and white	Standard / Dynamic / Smooth
PLAYBACK	Playback mode	Single display, 9 or 25-thumbnail display, Calendar display, Zoomed playback (16x max.), Image rotation (except for RAW), Slide show (duration is adjustable, also manual controllable), Playback of favorite pictures, Resizing (selectable number of pixels), Trimming, Protection, Aspect conversion, DPOF print setting
PROTECTION / ERASE	Protection	Single / Multi or cancel
	Erase	Single / Multi / All
DIRECT PRINT	Print	PictBridge (Print size, Layout, Date setting is selectable)
INTERFACE	Digital	USB 2.0 (high speed)
	Analog Video	NTSC / PAL composite (switched by menu)
POWER	Battery	Li-ion battery pack (7.2 V, 1500 mAh) (included)
	Battery life	Battery charger/AC Adaptor (input: 110-240 V AC) (included) Approx. 450 images (CIPA standard* with Leica D VARIO-ELMARIT 14-50mm / F2.8-3.5 ASPH. lens)
DIMENSIONS / WEIGHT	Dimensions (W x H x D)	145.8 x 86.9 x 80 mm
	Weight	Approx. 530 g (body only)
OPERATING CONDITION	Operating temperature	0˚C to 40˚C
	Operating humidity	10 % to 80 %
STANDARD ACCESSORIES	Software	LUMIX Simple Viewer, PHOTOfunSTUDIO-viewer-, SILKYPIX Developer Studio, Quick Time, USB Driver
	Standard accessries	Battery charger/AC adaptor, Battery pack, Eyepiece cap, Body cap, Video cable, USB connection cable, AC cable, DC cable, Strap, CD-ROM

Leica D VARIO-ELMARIT 14-50mm/F2.8-3.5 ASPH. Specifications

Lens construction	16 elements in 12 groups [2 aspherical lenses]
Mount	Four Thirds mount
Optical Image Stabilizer	On/Off (selectable mode1/2 with only DMC-L1)
Focal length	f=14 mm to 50 mm (35 mm film camera equivalent 28 mm to 100 mm)

Aperture type	7 diaghragm blades / Iris diaphragm
Minimum aperture	F22
Closest focusing distance	0.29 m at all focal lengths
Maximum magnification	Approx. 0.32x [35 mm film camera equivalent]

Diagonal angle of view	75° (W) - 24° (T)
Filter size	72 mm
Overall length	102.8 mm
Weight	Approx. 490 g

*Based on the CIPA standard. Using the Panasonic SD Memory Card and supplied batteries. The CIPA (Camera & Imaging Products Association) creates standards for measuring battery life. CIPA measurement method: Switch on the power and LCD, begin shooting in 30 seconds, switch between telephoto and wide angle every 30 seconds, fire the flash every other shot. After each series of 10 shots, turn the camera off until the battery cools. Ambient conditions: 23°C temperature and 50% humidity. The battery life differs depending on the condition of storage or use, and the environment. The number of recordable pictures varies depending on the recording interval time. If the recording interval time becomes longer, the number of recordable pictures decreases.

*LUMIX Simple Viewer and PHOTOfunSTUDIO-viewer- require Microsoft® Windows® 98SE, Windows® Me, Windows® 2000, or Windows® XP. SILKYPIX Developer Studio requires Microsoft® Windows® 98SE, Windows® Me, Windows® 2000, Windows® XP (Windows 2000/XP recommended. Installable only by a system administrator with authority to install software on a Windows XP/2000.), or Apple® Mac OS® 10.3 - OS X (Classic mode) or newer (Version 10.2 or later is recommended.) *Weight and dimensions shown are approximate. *Design, functions, and specifications are subject to change without notice. *Some sample images are simulated. *Some accessories are not available in some countries. *The use of recorded or printed materials that are protected by copyright for any purpose other than personal enjoyment is prohibited, as it would infringe upon the rights of the copyright holder. *Adobe is a trademark or registered trademark of Adobe Systems Incorporated in the United States and/or other countries.*Leica is a registered trademark of Leica Microsystems IR GmbH. * Elmarit is a registered trademark of Leica Camera AG. *The LEICA D VARIO-ELMARIT lens is manufactured using measurement instruments and a quality assurance system that have been certified by Leica Camera AG based on the company's quality standards. *Microsoft® Windows® is a registered trademark of Microsoft Corporation in the United States and other countries. *Apple® and Mac OS® are registered trademarks of Apple Computer Inc. in the United States and other countries. *All other company and product names are trademarks of their respective corporations. *QuickTime and the QuickTime logo are trademarks or registered trademarks of Apple Computer, Inc., used under license.